UDC: 621.317.74

USSR

AL'TSHULER, Yu. G., SOSUNOV, V. A., and YAZIKOV, V. N.

"Device for Measuring Complex Transfer Factors of Waveguide Four-Terminal Networks With Continuously Varying Parameters"

Elektron. tekhnika. Nauchno-tekhn. sb. Kontrol'no-izmerit. apparatura (Electronic Engineering, Scientific-Research Collection, Control and Measurement Equipment) 1970, No. 3(21), pp 113-123 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3A401)

Translation: A description is given of a variant of a device for measuring complex transfer factors of four-terminal waveguide networks in which in-phase, antiphase, and quadrature bridges are used as information signal transmitters. Results are given of the use of the measuring device for controlling moisture and dielectric permeability of liquids. Resume

1/1

UDC 681.333:53

USSR

KALININ, I. F., SOSUSTIN, B. P., PANTELEYEV, V. I.; Scientific Research Institute of Automation and Electromechanics Affiliated With Tomsk Polytechnical Institute

"A Device for Modeling Electric Circuits"

USSR Author's Certificate No 321832, filed 7 Apr 70, published 31 Jan 72 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7, Jul 72, Abstract No 7B477 P)

Translation: This Author's Certificate introduces a device for modeling electric circuits which contains a comparison module, a feedback module, an input signal generator, a load model, an operational amplifier, a square pulse generator, and relays. As a distinguishing feature of the device, the class of solvable problems is enlarged by connecting the winding of the relay in the comparison unit to the feedback module and through the normally closed contact of the commutation relay to the input signal generator, whose first output is connected to the square pulse generator. The output of the square pulse generator is connected thrcugh the first normally closed contact of the comparison module relay and

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USSR

KALININ, I. F. et al., USSR Author's Certificate No 321832

through the feedback module to the load model. The second output of the input signal generator is connected through the operational amplifier and the normally open contact of the commutation relay to the winding of the comparison module relay. The winding of the commutation relay is connected through the second normally closed contact of the comparison module relay to the zero line, the load model being connected through the first normally open contact of the comparison module to the zero line as well. One illustration.

2/2

UDC 621.791:620.192.7

USSR

KASATKIN, B. S., SOTCHENKO, V. P., KORAB, G. N., PETRUKHA, V. YE., MASLENKOV, YU. A., and BELOV, A. S.

"Device for Studying Slow Deterioration of Welded Joints"

Kiev, Avtomaticheskaya Svarka, No 3, Mar 71, pp 74-75

Abstract: This is a brief report on a device developed and manufactured at the Institute of Electric Welding imeni Ye. O. Paton for studying slow deterioration of welded joints. It automatically holds a given load on the specimen and changes it in accordance with a preset program. The specimens can be welded in the longitudinal and transverse directions with respect to the loading axis manually or automatically under flux and in shielding gases. A schematic and the basic parameters of the device are presented.

1/1

UDC: 621.375.82

USSR

VENKIN, G. V., DERYUGIN, L. N., PROTASOV, V. P., SOTIN, V. Ye., and CHEKHLOVA, T. K.

"Laser Using a Traveling Wave, Ring Waveguide Resonator"

Moscow, V sb. Kvant. elektronika (Quantum Electronics--collection of works) "Sov. radio," No 1(13), 1973, pp 108-109 (from RZh--Fizika, No 7, 1973, Abstract No 7D1007)

Translation: Oscillations are obtained from rhodamine 6Zh in a traveling wave, ring resonator in the excitation of the second harmonic in a neodymium laser. The ring resonator is a fine gelatin film on a glass rod. The concentration of the rhodamine in the film is 10^{-3}-10^{-2} moles/liter. Authors' abstract

1/1

SOTIN, V. Ye.

ARMY MATERIEL COMMAND

U.S. ARMY
FOREIGN SCIENCE AND TECHNOLOGY CENTER

FSTC-HT-23-364-72

RESONANT EXCITATION OF A PLANE DIELECTRIC WAVEGUIDE THROUGH A SUPERCRITICAL LAYER BY A PLANAR WAVE

by

L. N. Deryugin, A. N. Marchuk, V. Ye. Sotin

COUNTRY: USSR

UNCLASSIFIED PROCESSING DATE--13NOV70

1/2 026

TITLE--RADIATION FROM A PLANE DIELECTRIC WAVEGUIDE -U-

AUTHOR-(03)-MARCHUK, A.N., SOTIN, V.YE., DERYUGIN, L.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. VUZ. RADIOELEKTRONIKA, VOL. 8, MAR. 1970, P. 309-316

DATE PUBLISHED----MAR70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION

TOPIC TAGS--DIELECTRIC WAVEGUIDE, DIELECTRIC MATERIAL, SURFACE WAVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0452/70/008/000/0309/0316

PROXY REEL/FRAME--2000/0543

CIRC ACCESSION NO--AP0124238

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 026

CIRC ACCESSION NO--AP0124238

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE EMISSION OF SURFACE WAVES FROM AN EXTENDED SEGMENT OF A PLANE DIELECTRIC WAVEGUIDE INTO A CONTINUOUS DIELECTRIC MEDIUM LOCATED AT A GIVEN DISTANCE FROM THE WAVEGUIDE AND HAVING A LARGER REFRACTIVE INDEX. THE RADIATION FACTOR AND THE PHASE CONSTANTS OF SURFACE E AND H WAVES ARE CALCULATED, AND THE DIRECTIONAL PROPERTIES OF THE EMISSION ARE ANALYZED. THE OPTIMAL DISTANCE BETWEEN THE DIELECTRIC MEDIUM AND THE WAVEGUIDES IS CALCULATED FROM THE VIEWPOINT OF MAXIMUM GAIN.

UNCLASSIFIED

UDC 621.372.8

USSR

DERYUGIN, L. N., MARCHUK, A. N., SOTIN, V. YE.

"Resonance Excitation of a Plane Dielectric Waveguide Through a Plane Wave Supercritical Layer"

Kiev, Izvestiya VUZ -- Radioelektronika, Vol 13, No 8, 1970, pp 973-980

Abstract: This paper is the continuation of an earlier one written by the same authors investigating an asymmetrical dielectric waveguide consisting of a conducting layer between two media of given dielectric constants. The present paper considers the excitation of this waveguide. Assuming the incident wave to be polarized normal to the plane of incidence, the authors write the equations for the electric fields in each medium of four layers -- the fourth layer is the one providing the excitation -- and find the magnetic field components of the wave by using the Maxwell equation. For waves polarized along as well as normal to the plane of incidence, the authors find that the maximum achievable value of the amplitude in the resonator is inversely proportional to the average dielectric loss angle in the resonator layers. The system is tuned to resonance either by changing the angle of incidence of the wave or by varying the frequency of the exciting wave; to obtain maximum field amplitude in the resonator, the

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USSR

DERYUGIN, L. N., et al., Izvestiya VUZ -- Radioelektronika, Vol 13, No 8, 1970, pp 973-980

system is tuned by varying the thickness of the supercritical layers. The authors assert that such resonance systems can be used for measurement of small losses in thin films or nonlinear transformations in relatively small power sources.

2/2

S UDC: 621.396.67.095

USSR

DERYUGIN, L. N., MARCHUK, A. N., SOTIN, V. Ye.

"Radiation from a Flat Dielectric Waveguide"

Kiev, Izvestiya Vuzov SSSR--Radioelektronika, Vol 13, No 3, 1970, pp 309-116

Abstract: This is a follow-up article of an earlier one published by the same three authors in the journal named above (1967, 10, No. 2, p. 134.) The earlier article was devoted to consideration of a flat asymmetrical dielectric waveguide designed for the transmission of visible light and infrared waves with a dielectric layer between media of different dielectric constants. The present article considers the radiation from a similar waveguide in a delaying medium with a second layer at some specified distance from the first. Beginning with the Huygens principle, the authors find a relationship for the radiation angle in terms of the index

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USSR

DERYUGIN, L. N., et al, Izvestiya Vuzov SSSR--Radioelektronika, Vol 13, No 3, 1970, pp 309-316

of refraction in one of the media and the delay in the waveguide. The radiation coefficient and the phase constant of the E and H surface waves are computed. The gain factor is computed and a condition for maximum gain is found. Through the use of an example, the authors show how the derived equations can be used to calculate the field distribution along the radiating waveguide.

2/2

UDC 621.791.856.3:620.193.41

USSR

YURCHENKO, YU. F., SOTNICHENKO, A. L., AZAPOV, G. I., KOMISSAROV, V. G., and SHURAKOV, S. A.

"Effect of Heat Treatment on the Structure and Corrosion Resistance of the Metal In the Heat-Affected Zone of Joints of Kh18N10T Steel"

Kiev, Avtomaticheskaya Svarka, No 6, Jun 71, pp 8-11

Abstract: Studies were made on joints of 1Kh18N10T pipe 57 mm in diameter with a wall thickness of 3 mm produced by argon-arc welding. After welding, a portion of the joints were tempered at 700°C for 2,10, 100, and 1000 hours; the other portion was quenched in water after heating for different times at 1000-1250°C. Heat treatment of 1Kh18N10T weld joints increases the rate of knife corrosion and expands the front of its development. This was caused by precipitation, at this temperature, of chronium carbides of the type $Me_{23}C_6$ along the grain boundaries of the heat-affected zone. Holding at 700°C for 10-100 hours leads to coalescence and dissolution of these carbides and to the appearance of the sigma-phase at the grain boundaries. In this case the carbon, being freed in the dissolution of metastable chromium carbides, is bonded in carbides of titanium which are basically distributed in the body of austenite grains. However this process dimenishes the rate of knife corrosion. Quenching joints from 1000-1150°C lowers (by 1.5-5 times) the rate of knife

USSR

YURCHENKO, YU. F., etal, Kiev, Avtomaticheskaya Svarka, No 6, Jun 71, pp 8-11

corrosion. This has been associated with a change in the type of carbides of titanium in the heat-affected zone, by redistribution and removal of internal stresses, as well as with the elimination of concentration heterogeneity of austenite in grain bodies and in their boundaries. Increasing quenching temperature (1150-1250°C) leads to homogenization of all zones of the weld joint and prevents knife corrosion; Reheating joints for quenching above 1250°C increases the rate of knife corrosion. 7 figures, 2 bibliographical references.

2/2

1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--CAPILLARY IMPREGNATION OF THE CARRIER OF COMBUSTIBLE GAS FINE DISPERSED CATALYSTS -U-

AUTHOR--SOTNICHENKO, B.F.

COUNTRY OF INFO--USSR

SOURCE--DOPOV. AKAD. NAUK UKR. RSR, SER. A 1970, 32(3), 272-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--REACTION KINETICS, CATALYST, ADSORPTION, POROSITY, PLATINUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0441/70/032/003/0272/0276

PROXY REEL/FRAME--3006/1164

CIRC ACCESSION NO--AT0134846

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 019

CIRC ACCESSION NO--AT0134846

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TRANSFER OF ACTIVE SUBSTANCES FROM THEIR AQ. SOLNS. ONTO THE SURFACE OF A SINGLE CAPILLARY WAS CONSIDERED. THE IMPROVED IMPREGNATION OF POROUS GRANULES OF CARRIER SUBSTANCE WAS PROPOSED LEADING TO THE UNIFORM COVERAGE OF THE SURFACE BY THE ACTIVE SUBSTANCE SO THAT THE KINETIC CHARACTERISTICS OF A CATALYST WERE IMPROVED. THE POROUS GRANULES ARE 1ST SATD. WITH THE SOLVENT AND SUBSEQUENTLY ARE CONTACTED WITH A SOLN. OF THE ACTIVE SUBSTANCE (H SUB2 PTCL SUB6). THE DECREASED ADSORPTION IN THE 1ST PHASE OF THE INTERACTION REMOVES THE BLOCKING OF THE PORE ENTRANCE. THE MATH. DESCRIPTION OF THE REACTION KINETICS OF THE IMPREGNATION IS PRESENTED BY MEANS OF A SIMPLIFIED MODEL OF A CYLINDRICAL CAPILLARY.

FACILITY: INST. TEKH. TEPLOFIZ., KHARKOV, USSR.

UNCLASSIFIED

USSR

UDC 616.988.75(A-2)-092:612.118.221.2

FROLOV, V. K., SOKHIN, A. A., SOTNIK, A. Ya., and MOROZOVA, L. I., Donetskaya Oblast Epidemiological Station, Medical Institute, and Donetskaya Oblast Blood Transfusion Station, Donetsk

"A2 (Hong Kong) Influenza and the ABO and Rh Blood Groups"

Moscow, Voprosy Virusologii, No 6, 1972, pp 701-703

Abstract: A correlation was noted between ABO blood group and susceptibility to influenza among 2,289 patients with clinically diagnosed influenza and acute respiratory disease during the Jan/Mar 1970 A2 (Hong Kong) influenza epidemic in Donestskaya Oblast. Patients with blood groups O and AB were more susceptible to influenza than type A and B patients. A similar correlation was seen among 1,167 patients with serologically diagnosed influenza and among 72 influenza fatalities. Distribution of Rh factor was identical for patients and healthy individuals. Reasons for such correlation remain unknown.

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USSR

UDC 621.791.052.001.5:669-419.4:669.295+669.14

TRUBILKO, V. I., Engineer, SAVCHENKOV, V. A., Candidate of Technical Sciences, SOTNIK, I. S., Engineer, GROMOV, Ye. I., Candidate of Chemical Sciences, and VAYL, YE. I., Engineer

"Electrochemical Study of Welded Joints in Titanium-Steel Bimetal"

Moscow, Svarochnoye Proizvodstvo, No 2, Feb 71, pp 13-15

Abstract: A study is presented of the electrochemical behavior of individual sectors in the welded joint -- the seam metal, near-seam zone, and base bimetal. Comparison of the maximum values of anode current of polarization curves made in 37% hydrochloric and 77% sulfuric acid and in an aqueous solution of ammonium chloride indicates that the process of corrosion occurs more rapidly in hydrochloric acid, somewhat more slowly in 77% sulfuric acid. The corrosion resistance of the specimens studied (titanium-steel produced by rolling in a vacuum of $5 \cdot 10^{-5}$ mm Hg at 1000°C with 20% compression) in ammonium chloride was high. The same types of polarization curves were produced in all the corrosive media studied. The metal of the seam and the zone near the seam have more positive electrode potential than the bimetal in the initial state in the acids.

1/1

USSR

UDC 621.791:621.9-419:620.193.4

TRUBILKO, V. I., SAVCHENKOV, V. A., SOTNIK, I. S., Ukrainian Scientific Research Institute of Metallurgy, and GUREVICH, S. M., Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences UkrSSR

"Corrosion Resistance of Titanium-Steel Bimetal"

Kiev, Avtomaticheskaya Svarka, No 9, Sep 70, pp 16-18

Abstract: An investigation was made of the corrosion resistance of titanium-steel bimetal and its welded junctions in sulfuric and hydrochloric acids of various concentrations, and also in a mixture of sulfuric acid (density 1.64g/l) with calcium chlorate $Ca(ClO_3)_2$ (100-140 g/l) The preparation of samples and the experimental procedures are described. The bimetal was obtained by rolling, in a 5×10^{-5} mm Hg vacuum with 20% compression at 1000°C. The base layer was formed by 8-mm St 3 steel (GOST 380-60), the plating layer by 2-mm VTI-I (AMTU475-1-61) titanium, and the sublayer by 0.1-mm (TsNIIU05-31-66) vanadium. Corrosion was determined by the loss in sample weight and evaluated with a metal resistance scale (GOST 5272-50). The corrosion rate of titanium bimetal and its welded combinations as a function of sulfuric and hydrochloric acid concentrations is presented in a graph.

1/2

USSR

TRUBILKO, V. I., et al., Avtomaticheskaya Svarka, No 9, Sep 70, pp 16-18

The results show that 1) in up to 60% H_2SO_4 and up to 30% HCl concentrations the corrosion rate of bimetal and its combinations is the same, and practically does not differ from the rate of VTI-1 titanium; 2) the corrosion disintegration of bimetal and its combination, as well as of VTI-1 titanium occurs uniformly in solutions of sulfuric and hydrochloric acides; 3) the bimetal and its combination possess a high corrosion resistance in solutions of sulfuric acid and calcium chlorate used in the production of chlorine dioxide. 3 figures, 1 table.

2/2

USSR UDC 621.791.011:669.14:62-761

TRUBILKO, V. I., Engineer, SAVCHENKOV, V. A., Candidate of Engineering Sciences, SOTNIK, I. S., and TERTYSHNAYA, N. K., Engineers, Ukrainian Scientific Research Institute of Metals

"Effect of Protective Coatings on the Properties of Weld Joints"

Moscow, Svarochnoye Proizvodstvo, No 1, Jan 73, pp 25-26

Abstract: Three types of primer paints (GF-570, GF-570RK, and FL-03K) were investigated to determine the effect of coating type and thickness on stability of arc burning, seam formation, welding mode, and weld joint properties as well as determination of the sanitary and hygienic conditions of the welding process. Tests were made using St. 3sp steel, 10 mm thick, with the following chemical composition: 0.19% C, 0.52% Mn, 0.21% Si, 0.018% S, and 0.011% P. Results of the tests showed that use of the above-mentioned primer paints, with a thickness of 15-25 microns, provides satisfactory weld joint properties when welding with standard modes. The seam metal had a ductility equal to that of the base metal. Increasing coating thickness leads to deterioration of the seam formation and development of pores. Strength is increased by means of slowing the welding speed.
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USSR

TRUBILKO, V. I., et al., Svarochnoye Proizvodstvo, No 1, Jan 73, pp 25-26

FL-03K primer caused pores to form in the metal seam, and porosity could only be eliminared by reducing the welding speed by 10-15%. Best coating and thickness for extended protection from corrosion was a 25-micron thickness of GF-570RK. One figure, 2 tables.

2/2

USSR

UDC: 669.15-198-154:541.13

FUGMAN, G. I., SOTNIKOV, A. I., YESIN, O. A., and BARMIN, L. N., Ural Polytechnic Institute

"Rate of Ion Exchange Between Liquid Ferrotitanium and an Oxide Melt"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 4, 1973, pp 9-12

Abstract: The authors study the use of the Faraday impedance method for finding the kinetic parameters of the oxidation-reduction processes taking place between metal and slag under retarded relaxation conditions of a double electric layer. It is shown that the use of standard methods for processing experimental data can result in significant error. Methodology is proposed for determining the exchange current (i_o) by analyzing the active component of the electrode impedance. The methodology is used in analyzing the results of the measurements in the ferrotitanium-slag system. The concentration relationship i_o of titanium is studied for the 1450-1550°C interval at 3-16 percent titanium in the metal and 0.5-5.0 percent TiO_2 in the slag. A kinetics equation is proposed for calculating i_o.

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1/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--APPARATUS FOR MEASURING DIELECTRIC PROPERTIES OF A FILM DURING DEFORMATION AT A WIDE RANGE OF RATES AND TEMPERATURES -U-

AUTHOR-(02)-AKYEV, A.M., SOTNIKOV, A.V.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(5), 624-5

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--DIELECTRIC PROPERTY, ELASTIC DEFORMATION, DIELECTRIC LOSS, DIELECTRIC MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0914 STEP NO--UR/0032/70/036/005/0624/0625

CIRC ACCESSION NO--AP0131500

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131500

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CIRCULAR FILM IS STRETCHED RADIALLY BY A SYSTEM OF CLAMPS ATTACHED TO LEVERS MOVING OUTWARD AT A PREDETD. RATE. THE FILM IS HEATED LESS THAN OR EQUAL TO 350DEGREES OR COOLED TO MINUS 150DEGREES IN VACUO, WHILE BEING STRETCHED, AND ITS DIELEC. LOSS TANGENT IS DETD. AT SHORT TIME INTERVALS. FACILITY: LUGANSK. MASHINOSTROIT. INST., LUGANSK, USSR.

UNCLASSIFIED

USSR

UDC 621.791.856

ABRALOV, M. A., UMAROV, B. V., SOTNIKOV, E. A., CHERKASOV

"Microplasma Welding of Envelopes of Type Kh18N10T Steel"

Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Tekhnicheskikh Nauk, No 5, 1971, pp 26-28.

ABSTRACT: Workers at the Tashkent Polytechnical Institute have developed a method of microplasma welding of Kh18N10T steel envelopes (wall thickness 0.3 mm, length 450 mm, diameter 60-120 mm), designed to replace argon-arc welding. The plasma is produced in the shape of a needle, and can thus weld a narrow seam. The microplasma can be extended to 8-9 mm in length with currents of 10 a. Since the arc is insensitive to changes in its length, the welding process is more stable, seam quality is improved and the welding rate increases. Welding is performed using direct current from a A-1255 power supply. Metallographic studies have shown that microplasma welding by this method produces seams with finer grain structure than with argon arc welding. The microplasma welding method can also be used for correction of defects such as cracks and pores.

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Acc. Nr: AP0049799 Abstracting Service: CHEMICAL ABST. 5-70

Ref. Code: 4R0135

101593n Determining the gas permeability of rubber goods. Gaziev, G. A.; Barkov, A. S.; Sotnikov, E. E.; Faustova, D. G.; Gus'kova, N. I.; Reitlinger, S. A. (Inst. Biofiz., Moscow, USSR). *Kauch. Rezina* 1970, 29(1), 50–2 (Russ). Gas chromatog. was used to det. the permeability to N, H, and CO_2 of polychloroprene (I), natural rubber (II), or containers made of I or II bonded with adhesive SV-1. The method is suggested for testing the quality of bonded joints between plastics. CPJR

REEL/FRAME 19801721

USSR

UDC 576.8.095.15

IMSHENETSKII, A. A., LYSENKO, S. V., SOTNIKOV, G. G., ABYZOV, S. S.
(Institute of Microbiology, USSR Academy of Sciences)

"Effect of Very Low Temperatures on the ATP of Microorganisms"

Moscow, Mikrobiologiya, 1973, Vol 42, No 4, pp 651-654

Abstract: Very low temperatures were shown to have a stabilizing effect on ATP. Microorganisms (Serratia marcescens, Sarcina flava, Bacillus simplex, Zygosaccharomyces vini, Candida tropicalis) kept at -196°C (liquid nitrogen) showed no loss of ATP. In non-spore-forming bacteria and yeasts stored at +5°C the ATP was largely consumed. Bacillus simplex spores contain a relatively small amount of ATP, which was not used up during storage at either -196 or +5°C. The ATP was released from the cells by boiling and was detected by the chemiluminescent reaction.

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USSR

UDC 577.150.3:576.8

IESHEHETSKIY, A. A., LYSENKO, S. V., and SOTNIKOV, G. G., Institute of Microbiology, academy of Sciences USSR

"The Effect of a High vacuum on the Activity of Ferroporphyrin Enzymes in Microorganisms"

Moscow, Mikrobiologiya, No 2, 1971, pp 289-292

Abstract: Four-day-old cultures of Sarcina flava, Serratia marcescens, Bacillus simplex, and Zygosaccharomyces vini were exposed to a vacuum (10^{-8} to 10^{-9} mm Hg) for 72 hours. The ferroporphyrin enzymes after exposure were more active in the vacuum-resistant B. simplex and S. flava cultures than in S. marcescens and Z. vini. However, the activity of the ferroporphyrin enzymes studied at the subcellular level was virtually the same in both vacuum-resistant and nonvacuum-resistant microorganisms. For example, S. marcescens cultures that died after 3 days in a high vacuum had the same enzymatic activity as the B. simplex spores which survived the exposure. Two important facts were revealed by the experiments. First, the activity of ferroporphyrin enzymes was higher at the cellular level in all the microorganisms that in a cell homogenate. Second, enzymatic activity was greater in vacuum-resistant microorganisms than in nonresistant ones.

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1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ATP CONTENT IN THE CELLS OF THE POLYPLOID STRAIN OF CANDIDA SCOTTII -U-

AUTHOR-(03)-IMSHENETSKIY, A.A., KONDRATYEVA, T.F., SOTNIKOV, G.G.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 30-34

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ADENOSINE TRIPHOSPHATE, YEAST, CELL CULTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0444 STEP NO--UR/0220/70/039/001/0030/0034

CIRC ACCESSION NO--AP0117680

UNCLASSIFIED

2/2 008 UNCLASSIFIED

CIRC ACCESSION NO--AP0117680 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CELLS OF THE EXPERIMENTALLY OBTAINED POLYPLOID YEAST CANDIDA SCOTTII (12, 18 AND 24 HOURS' OLD) CONTAIN MORE ATP PER BIOMASS UNIT THAN THE CELLS OF THE PARENT CULTURE OF THE SAME AGE. THE POLYPLOID CELLS OF THE OLDER CULTURES CONTAIN LESS ATP THAN THE PARENT STRAIN. THE POLYPLOID STRAIN R OF C. SCOTTII SEEMS TO ACCUMULATE AND UTILIZE ENERGY IN THE FORM OF ATP MORE INTENSIVELY THAN THE PARENT CULTURE.

UNCLASSIFIED

USSR

UDC 576.851.5.095

IVANOVA, I. I., SHAFOROSTOVA, L. D., RABOTNOVA, I. L., and SOTNIKOV, G. G.,
Institute of Microbiology, Academy of Sciences USSR, Moscow

"The Role of Catabolic and Anabolic Processes Associated With the Uneven Growth of Bacillus megatherium in the Exponential Phase of Growth"

Moscow, Mikrobiologiya, Vol 41, No 1, Jan/Feb 72, pp 64-67

Abstract: Bacillus megatherium was grown in a synthetic medium containing 0.3% sodium citrate as the only source of carbon. The activity of four enzymes was tested in the supernatant fluid after breaking the cells by ultrasound: pyruvate decarboxylase (PD), L-isocitric-$NADP^+$ dehydrogenase (ID), D-glucose-6-phosphate-$NADP^+$ dehydrogenase (G6D), and decarboxylase of oxalodiacetic acid (DOA). The production of CO_2 and the consumption of oxygen were tested in washed cell cultures and the level of adenosine 5-triphosphate (ATP) was tested in the extract from bacterial cells. During the first half of exponential growth, the anaerobic decomposition of citrate prevailed, whereas oxidative processes were characteristic for the second half. Each increase of growth was preceded by an increase in ATP concentration. DOA activity was maximal in the first part of growth, when no activity of ID could be detected. ID activity appeared and increased after 3 hours of growth,

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USSR

IVANOVA, I. I., et al., Mikrobiologiya, Vol 41, No 1, Jan/Feb 72, pp 64-67

when DOA activity decreased. The activity of both PD and G6D increased during growth with their maximum before the second growth peak was reached. The decrease of activity at the time of the second peak was typical for all four enzymes tested. The uneven growth rate during the exponential phase was due to the intracellular regulation of catabolic and anabolic processes. The monophosphate and glycolytic pathways were apparently involved in the anabolic processes in Bac. megatherium.

2/2

1/2 031 UNCLASSIFIED

TITLE--INTENSITIES OF THE PARTIAL RADIATIVE TRANSITIONS TO THE ROTATIONAL AND VIBRATIONAL BANDS IN THE RESONANCES OF THE GD PRIME155 AND GD

AUTHOR-(03)-DANELYAN, L.S., YEFIMOV, B.V., SOTNIKOV, S.K.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 2, PP 456-459

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--NUCLEAR SPIN RESONANCE, RADIATIVE CAPTURE, NEUTRON IRRADIATION, PHOTON EMISSION, GAMMA SPECTRUM, GADOLINIUM ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1976/2057 STEP NO--UR/0056/70/058/002/0456/0459

CIRC ACCESSION NO--AP0043585

UNCLASSIFIED

2/2 031 UNCLASSIFIED

CIRC ACCESSION NO--AP0043585 PROCESSING DATE--090CT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TOTAL INTENSITIES OF GAMMA TRANSITIONS TO THE ROTATIONAL AND VIBRATIONAL BAND LEVELS IN THE GD PRIME155 AND GD PRIME157 ISOTOPE RESONANCES FOR NEUTRON ENERGIES UP TO 150 EV ARE MEASURED WITH A DOUBLE CRYSTAL SCINTILLATION SPECTROMETER. AN ANALYSIS OF THE EXPERIMENTAL DATA INDICATES THE EXISTENCE OF CORRELATION BETWEEN THE INTENSITIES OF TRANSITIONS TO THE ROTATIONAL BAND AND THE SPINS OF THE INTIAL STATES IN THE GD PRIME155 NUCLEUS. A PROBABILITY ASSIGNMENT OF CAPTURE STATE SPINS OF GD PRIME155 IS MADE.

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SOTNIKOV, V. G., RED'KIN, V. S., ZASHKVARA, V. V., CHAYKOVSKIY, E. F., KORSUNSKIY, M. I.

"Decrease in Carbon Concentration in Surface Layers of Mo_2C and W_2C"

Leningrad, Fizika Tverdogo Tela, No. 4, Apr 71, pp 1058-1061

Abstract: The characteristic energy loss spectrum of Mo_2C and W_2C samples was studied by the method of reflecting a primary beam of electrons of 800 ev energy for two scattering angles 39 and 141°. The samples were made by high-temperature heating of polycrystalline strips of pure Mo and W in benzene vapors. In taking the spectra the samples were heated up to 800, 1250, 1600, 1800, and 2000°C in a vacuum of 10^{-6} torr. It was established that an increased concentration of hydrogen is contained in the surface layer in the initial samples. In the process of high-temperature heating of the samples there is observed desorption of carbon from the surface layer, with the result that the concentration composition of the surface layer approaches the pure metal (Mo, W). When the temperature is raised to 2000°C and the sample is held for one and one-half hours at this temperature, the desorption of carbon from the surface layer continues until the stability of

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SOTNIKOV, V. G., et al, Fizika tverdogo tela, No. 4, Apr 71, pp 1058-1061

the characteristic energy loss spectrum obtained for the scattering angle of 141° indicates the relative stability of the concentration content of carbon in deep layers of the samples.

2/2

SOTNIKOV, V. N.

JPRS 55569
29 Nov 72

UDC: 616.345-072.1

COLONOSCOPY IN COLON PATHOLOGY DIAGNOSTICS

[Article by Yu.Ye. Berezov, V.N. Sotnikov, Yu.M. Kornilov, Second Moscow Medical Institute imeni N.I. Pirogov; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 2, 1972, pp 65-69]

The use in surgical practice of colonoscopes with flexible optical elements has expanded considerably the opportunities for clinicians to examine pathological states in the colon at different levels. Inflammatory and ulcerative processes, atrophic and cicatricial changes in the mucosa, and a number of other diseases of the colon are often impossible to detect by means of irrigoscopy. In diagnostically difficult cases visual examination of the mucosa up to the ileocecal valve often settles a diagnostic doubt and permits choosing the proper method of therapy.

For a long time, only the distal colon was accessible to endoscopic examination. In 1928, Hoff first succeeded in passing an elastic tube through the intestinal lumen to the ileocecal angle. However, colonoscopy as an investigative method, began to develop in the last few years with the appearance of fiberoptic instruments (Yamagata et al.; Dean et al., and others).

We performed 47 colonoscopies and 58 combined colonoscopies and laparoscopies in the presence of diverse pathology of the colon. The purpose of endoscopy was: 1) determination of the causes of vague pain along the course of the colon; 2) establishment of the source of hemorrhages from the colon and etiology of chronic constipation or diarrhea; 3) differential diagnosis of ulcerations of the mucosa and determination of type of tumor; 4) monitoring the effectiveness of conservative treatment of inflammatory disease of the colon and polyposis.

In order to pinpoint the exact boundaries of pathological elements, the extensiveness of the tumor process, and for preventive examination of patients who underwent colon resection for carcinoma, a combined colono-

1/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--OPERATIONAL CALCULATIONS BY MEANS OF THE THEORY OF PROBABILITIES -U-

AUTHOR-(05)-MARTYNOV, I.M., SOTNIKOV, YE.A., TULUPOV, L.P., KUTYYEV, G.M., SHABALIN, N.N.

COUNTRY OF INFO--USSR

SOURCE--(EKSPLUATATIONNYYE RASCHETY S PRIMENENIYEM TEORII VEROYATNOSTEY) MOSCOW, TRANSPORT, 1970, 238 PP

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATHEMATICAL SCIENCES

TOPIC TAGS--RAILWAY NETWORK, RAILWAY TRAFFIC, PROBABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1699 STEP NO--UR/0000/70/000/000/0001/0238

CIRC ACCESSION NO--AM0130569

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AM0130569

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 3. CHAPTER I. ELEMENTARY CONCEPTS OF THE THEORY OF PROBABILITIES 5. II. CERTAIN PROBLEMS IN OPERATION OF RAILROAD STATIONS 47. III. RELATIONSHIP BETWEEN TECHNOLOGICAL INDICES AND PARAMETERS OF EQUIPMENT OF STATIONS 72. IV. THE PROCESS OF ACCUMULATION OF RAILROAD CARS IN THE SORTING YEARD 138. V. USE OF THE THEORY OF PROBABILITIES IN ORGANIZATION OF CAR FLOW AND OPERATION OF RAILROAD JUNCTIONS 164. VI. CERTAIN PROBABILITY RULES IN DAILY FORCAST OF UNLOADING, LOADING AND CHECK OF CARS 195. VII. OPERATIONAL CALCULATIONS BY MEANS OF THE INFORMATION THEORY 312. THE BOOK CONTAINS BRIEF SIMPLE DATA ON THE THEORY OF PROBABILITIES, MATHEMATICAL STATISTICS AND INFORMATION THEORY. GIVEN ARE METHODS FOR THE USE OF INDICATED SECTIONS OF MATHEMATICS IN PLANNING OF OPERATION OF RAILROAD STATIONS, CALCULATION OF PARAMETERS OF THEIR FACILITIES AND OPERATING INDICES. THE BOOK WAS WRITTEN FOR ENGINEERING TECHNICAL PERSONNEL AND SCIENTISTS IN RAILROAD TRANSPORT, AS WELL AS STUDENTS.

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USSR

UDC 669.71,018.9.4(088.8)

KIMSTACH, G. M., KORYAKIN, G. I., UTKIN, S. Ye., SOTNIKOVA, A. T., YEFIMOVA, A. Ya., and PROTALEV, V. M.

"Method of Refining Aluminum Alloys"

USSR Author's Certificate No. 265451, Filed 8/07/68, Published 25/06/70, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No.1 G159 P).

Translation: In order to achieve simultaneous removal of gas inclusions and nonmetallic impurities and to increase the effectiveness of refining, the alloy is treated with hexachloroethane with a layer of liquid refining flux on the surface of the bath.

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USSR UDC 77

GOROKHOVSKIY, V. M., LEVIN, YA. A., SOTNIKOVA, I. P., RAKOVA, N. F., KARUNINA, V. V., GALIMOVA, A. M.

"Certain Photographic and Physicochemical Properties of 2- and 5-n-alkyl Homologs of 4-oxo-6-methyl-1,2,4-triazole-(2,3a)-pyrimidine"

Uspekhi nauchn. fotogr. (Advances in Scientific Photography), 1970, Vol. 14, pp 24-29 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12D1340)

Translation: Photographic and physicochemical properties of 2- and 5-n-alkyl derivatives of sta-salt with substitutes before C_7H_{15} in the second position and before C_9H_{19} in the fifth position. All these substances effectively stopped aging of the emulsion; their stabilizing activity decreased with concentration and there was also observed a greater dilution for a longer alkyl radical. The action of these substances on the emulsion at the time of introduction varied: an increase and a lowering of sensitivity or fogging were encountered, but with an increase in the length of the substitute the predominant effect became desensitization in combination with defogging, a property absent in sta-salt. A

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study of the adsorption of sta-salt homologs on the Hg electrode by the oscillographic polarography method showed that as distinct from sta-salt, which does not have oxidation-reduction peaks and capacity jumps in the region limited by the anode wave of Hg-oxidation and reduction of the background homologs of sta-salt give desorption peaks in this region, the height of which rises with an increase in the length of the substitute and correlates well with their desensitizing effect. This correlation indicates that the deactivization of the sensitivity centers is greater as substances are adsorbed more intensively. A determination of acid dissociation constants of sta-salt homologs and the solubility products of their Ag-salts showed that both quantities drop with an increase in the length of the substitute and the latter must also lead to progressive desensitization. 16 references. Authors abstract.

SOTNIKOVA, L.M.

UNCLASSIFIED PROCESSING DATE--03JUL70

TITLE--NEW PHOTOSTABILIZERS OF POLYOLEFINS -U-

AUTHOR--ZIMIN, YU.B., LEVIN, P.I., MATVEYEVA, E.A., KOZDOBY, A.A., SOTNIKOVA, L.M.

CORPORATE AUTHOR--UNKNOWN

SOURCE--PLAST. MASSY 1970, (1), 20-1

DATE PUBLISHED-------70

33/5/38

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CHEMICAL STABILIZER, POLYETHYLENE, PHOTOEFFECT, LIGHT AGING, HYDROXYL RADICAL, KETONE, ORGANIC SULFUR COMPOUND, BENZENE DERIVATIVE, POLYMER/(U)PRK2 LAMP, (U)P2C2CT POLYETHYLENE, (U)P4020E POLYETHYLENE

CONTROL MARKINGS--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1980/1605 STEP NO--UR/0191/70/000/001/0020/0021

CIRC ACCESSION NO--APO045767

UNCLASSIFIED

Acc. Nr: AP0049767 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR 0191

101351g New photostabilizers of polyolefins. Zimin, Yu. B.; Levin, P. I.; Matveeva, E. A.; Kozodoi, A. A.; Solnikova, L. M. (USSR). *Plast. Massy* 1970, (1), 20-1 (Russ). The effects of 2-hydroxy-4-propoxyphenyl thienyl ketone (I), and 2-hydroxy-4-octyloxyphenyl thienyl ketone (II) as photostabilizers of low-d. polyethylene P 2020T (III) and high-d. polyethylene P 4020E (IV) were studied. Thus, 0.5-0.66% of I and II were added to III and IV and the polymers were aged under a PRK-2 lamp at 25°. The phys. and mech. properties of stabilized III and IV were unchanged after a 12 month exposure in the air, indicating that I and II were effective photostabilizers comparable to Benzone OA.

CKJR J 11C

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REEL/FRAME
19801685

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UDC 546.681.3'824:542.915

SPIRIDONOV, F. M., ROZDIN, I. A., SOTNIKOVA, M. N., KOMISSAROVA, L. N., and PLYUSHCHEV, V. Ye., Moscow State University imeni M. V. Lomonosov, Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov

"Gallium Titanates"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 7, No 5, May 71, pp 817-824

Abstract: A detailed study of gallium titanates by the method of roentgenographic analysis is presented. The experimental technique is briefly described. Gallium metatitanates, dititanates, and titanates were considered, and experimental data presented in tabular form show that the first two are formed at 1400°C and the latter at 950°C. The gallium metatitanate is stable at more than 1100°C, and in a metastable state it undergoes a polymorphic transformation at 960°. The dititanate is an unstable compound having a series of polymorphic transformations. The δ-phase (having a deformed rutile lattice) is the most stable gallium titanate. Melting points of gallium titanates are 1590 ± 20°C for $Ga_2O_3 \cdot Ti\ O_3$; 1680 ± 50°C for $Ga_2O_3 \cdot 2\ Ti\ O_2$; and 1860 ± 50°C for the δ-phase.

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USSR

UDC 541.13+541.515+542.941+661.718.1

IL'YASOV, A. V., KARGIN, Yu. M., LEVIN, Ya. A., MOROZOVA, I. D., MEL'NIKOV, B. V., VARINA, A. A., SOTNIKOVA, N. N., and GALEYEV, V. S., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, USSR Acad. of Sciences

"Electrochemically Generated Free Radicals. 6. The Reduction Mechanism of Certain Organophosphorus Compounds, and the Electron Paramagnetic Resonance Spectra of the Anion Radicals Formed"

Moscow, Izvestiya Akademii Nauk SSR, Seriya Khimicheskaya, No 4, 71, pp 770-776

Abstract: A series of organophosphorus compounds was studied in connection with their electrochemical reduction, using several methods. The electron paramagnetic method was applied in the case of electrochemically generated anion radicals of triphenylphosphine, its oxides, and the diethyl ester of β-styrylphosphosphonic acid.

Graphical data accompanying the paper include classical and commutated polarograms for the various compounds, and electron paramagnetic spectra for free radicals; numerical electrochemical data are given for nine organophosphorus compounds tested.

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USSR

BOKUT', B. V. and SOTSKIY, B. A. UDC 535.51

"A Possibility of Controlling the Rotational Angle of the Radiation Polarization Plane"

Minsk, Zhurnal Prikladnoy Spektroskopii, November 1973, pp 926-928

Abstract: This theoretical paper considers the problem of the propagation of an electromagnetic field in an optically active anisotropic medium under the action of an external constant or low-frequency electric field. The effect of a crystal of the $\bar{4}$ 2m class in rotating the plane of polarization of such a field is examined, and it is found that in the general case two elliptically polarized waves are propagated in the crystal. The authors conclude that it is possible to control the polarization through electrogyration. It is noted that similar calculations can be used for crystals of other classes with isotropy at a definite wavelength.

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USSR

UDC 612.824+616.831-005

MIRZOYAN, S. A., MKHEYAN, E. Ye., SEKOYAN, E. S., and SOTSKIY, O. P.,
Yerevan State Medical Institute

"Influence of Gangliosides on Blood Circulation in the Brain"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 2, 1971, pp 507-509

Abstract: The effect of gangliosides on the following aspects of blood circulation in the brain was investigated: changes in blood vessel tonus; systemic arterial pressure; linear speed of blood flow through the gray matter; intracranial blood accumulation. Tests were conducted under conditions of natural and artificial respiration. Intracarotid introduction of gangliosides was accompanied by a distinct increase in the resistance of cerebral blood vessels, by a drop in the systemic pressure, and by a decrease in the amplitude and frequency of respiratory movements. The degree of reaction produced by gangliosides was directly dependent on the size of the doses. The smaller the dose, the less the strength and duration of the effect. Intravenous introduction of gangliosides led to a marked reduction in blood supply to the cortex, a marked and quick drop in the blood flow rate, a lowering of arterial pressure, a short suspension of respiration, and a distinct decrease in intercranial blood accumulation. In conclusion,
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UDC 535

ANISIMOV, V. YA., SOTSKIY, V. A., and STOLYAROV, A. D.

"Form of the Distribution Function of Coherent Fields"

Minsk, Doklady Akademii Nauk BSSR, Vol 14, No 12, 70, pp 1075-1077

Abstract: Based on the general properties of the distribution function, this article attempts to establish its form for random fields, coherent in the first and subsequent orders. The electromagnetic field is described by an analytical signal which represents a random function of space and time.

A formula is given for the combined density distribution of the field at two space-time points, and the basic requirements are imposed that it be a real, positive function and that the integration be carried out over both complex planes of the variable V_j.

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ANISIMOV, V. YA., et al., Doklady Akademii Nauk BSSR, Vol 14, No 12, 70, pp 1075-1077

It is further given that the field must be coherent in the first order for any pairs of points 1 and 2. By combining the first two numbered equations an integral expression is found which satisfies the distribution density. In essence this equation is simply a limiting case of the Buniakowski-Schwarz inequality. It is ultimately found that the distribution function f_2 for stationary fields, coherent in the first order, has the form of:

$$f_2 = \frac{1}{\pi\sigma_1^2\sigma_2^2} C\left(\frac{|V_1|}{\sigma_1}\right)\delta^{(2)}\left(\frac{V_1}{\sigma_1} - \frac{V_2}{\sigma_2}e^{-i\theta_{12}}\right).$$

This equation can easily be generalized to the case of an n-dimensional distribution density. Unlike equations derived in other articles, these show not only sufficiency, which is obvious, but necessity as well. The conclusion is reached that if the field is coherent in the first and second orders, then it must be coherent in all orders.

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1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--ANALYSIS OF THE OPERATION OF A SULFURIC ACID ALKYLATION INSTALLATION -U-

AUTHOR-(04)-VSTAVSKAYA, L.I., POLYAKOVA, A.I., SOTSKOV, M.K., GARAYEVA, F.G.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. MOSCOW, 1970, (2), 25-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--SULFURIC ACID, ALKYLATION, PROPANE, CHEMICAL PURITY, CHEMICAL PLANT EQUIPMENT, CHEMICAL ENGINEERING

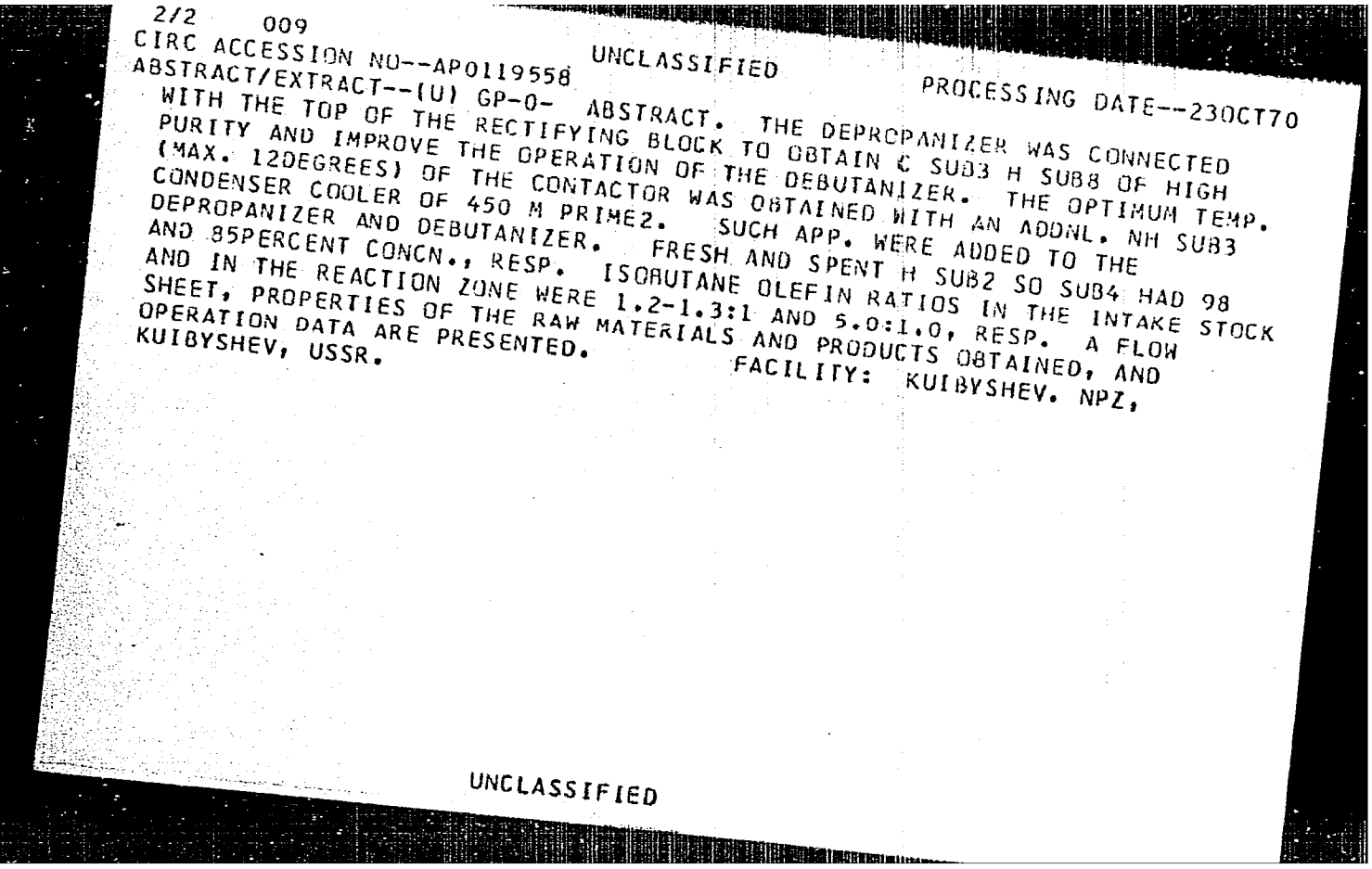
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0646 STEP NO--UR/0318/70/000/002/0025/0027

CIRC ACCESSION NO--AP0119558

UNCLASSIFIED



2/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0119558
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPROPANIZER WAS CONNECTED WITH THE TOP OF THE RECTIFYING BLOCK TO OBTAIN C SUB3 H SUB8 OF HIGH PURITY AND IMPROVE THE OPERATION OF THE DEBUTANIZER. THE OPTIMUM TEMP. (MAX. 12DEGREES) OF THE CONTACTOR WAS OBTAINED WITH AN ADDNL. NH SUB3 CONDENSER COOLER OF 450 M PRIME2. SUCH APP. WERE ADDED TO THE DEPROPANIZER AND DEBUTANIZER. FRESH AND SPENT H SUB2 SO SUB4 HAD 98 AND 85PERCENT CONCN., RESP. ISOBUTANE OLEFIN RATIOS IN THE INTAKE STOCK AND IN THE REACTION ZONE WERE 1.2-1.3:1 AND 5.0:1.0, RESP. A FLOW SHEET, PROPERTIES OF THE RAW MATERIALS AND PRODUCTS OBTAINED, AND OPERATION DATA ARE PRESENTED. FACILITY: KUIBYSHEV. NPZ, KUIBYSHEV, USSR.

UNCLASSIFIED

USSR

SOTSKOV, B. S. (Deceased) UDC: 681.2.019.3

"Reliability of Automatic Devices and Systems; its Substantiation and Methods of Evaluation"

Moscow, Pribory i Sistemy Upravleniya, No 4, 1973, pp 10-13

Abstract: An extremely important problem in modern engineering is the reliability of automatic devices and systems, a problem embracing a number of fundamental questions. These basic scientific questions are summarized in this article. They include the following: the mathematical problems connected with further developments in probability theory; physical and physico-chemical problems; design and structural problems; the physics of breakdown and disrepair. A table of the basic physico-chemical processes causing material aging and wear is given, together with the mathematical expression for each process, the rate of the process, and the effect of various physical factors on the constants of the process.

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USSR

SOTSKOV, B. S.

"Measurements and Information-Measurement System"

Probl. Upr. i Teorii Inform. [Problems of Control and Information Theory], 1972, Vol 1, No 2, pp 103-115 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V230, by the author).

Translation: Measurements are one of the most important components of scientific investigations and the improvement of technological processes. This articles studies the structure of modern measurement devices, problems of the development of new physical principles for their construction, methods and means for storage and processing of measurement results and application of computer devices and machines.

A number of primary problems are defined for the current stage of development of measurement technology: determination of new physical principles of construction, development of means for transmission of measurement information, development of means for storage and processing of information, automation of primary and supplementary processes during measurement. One of the primary tasks is standardization of parameters of signals, parameters of power supplies, forms and parameters of information carriers for recording of

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Sotskov, B. S., Probl. Upr. i Teorii Inform., 1972, Vol 1, No 2, pp 103-115.

information and methods of writing and reproduction: standardization of structural forms and points of connection.

1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--ANALYSIS OF THE GEOMETRY OF ROTATIONAL CUTS IN STATICS -U-

AUTHOR-(03)-KONOVALOV, Y.G., SOUS, A.V., SEDELNIKOV, B.M.

COUNTRY OF INFO--USSR

SOURCE--MINSK, IZVESTIYA AKADEMII NAUK BSSR, SERIYA FIZIKO-TEKHNICHESKIKH NAUK, NO. 1, 1970, PP 37-46

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL CUTTING, CUTTING TOOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/2008 STEP NO--UR/0201/70/000/001/0037/0046

CIRC ACCESSION NO--AP0118964

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118964

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PURPOSE OF THIS ARTICLE IS TO SHOW HOW LABOR OUTPUT IN CUTTING METALS CAN BE IMPROVED BY APPLYING NEW KINETIC CUTTING METHODS; FOR EXAMPLE, ROTATIONAL CUTTING THROUGH THE USE OF A ROTATING INSTRUMENT. SINCE THE METHODS DESCRIBED IN THE LITERATURE FOR DETERMINING THE ACTUAL OPERATING ANGLES OF ROTATIONAL CUTS TO BEST ADVANTAGE ARE CUMBERSOME AND INCONVENIENT FOR PRACTICAL USE, THE AUTHORS OFFER A SIMPLER THEORETICAL ANALYSIS OF THE GEOMETRY OF THOSE CUTS IN PROLONGED LATHE WORK, BORING, AND PREPARING FLAT SURFACES. THEIR ANALYSIS LEADS THEM TO THREE CONCLUSIONS: FIRST, THE CUTTING ANGLES AND THEIR POSITIONS RELATIVE TO THE WORK ARE CHOSEN FROM THE OPTIMAL VALUES PROVIDED BY THREE EQUATIONS DEVELOPED IN THE ARTICLE'S TEST: SECOND, THE COMPUTATIONS MADE BY THE FORMULAS DEVELOPED BY THE ARTICLE SHOW THAT AT CONSTANT GRINDING ANGLES, THE FORWARD ANGLE IS REDUCED AND THE REAR ANGLE IS INCREASED WITH INCREASING MACHINE ANGLES; THIRD, AN INCREASE IN THE DEPTH OF CUT IN REVERSE CUTTING LEADS TO AN INCREASE IN THE FORWARD ANGLE AND A REDUCTION IN THE REAR ANGLE.

UNCLASSIFIED

USSR

KONOVALOV, Ye. G., SOUS, A. V., and SEDEL'NIKOV, B. M.

UDC: 621.941.014.8

"Analysis of the Geometry of Rotational Cuts in Statics"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No. 1, 1970, pp 37-46

Abstract: The purpose of this article is to show how labor output in cutting metals can be improved by applying new kinetic cutting methods; for example, rotational cutting through the use of a rotating instrument. Since the methods described in the literature for determining the actual operating angles of rotational cuts to best advantage are cumbersome and inconvenient for practical use, the authors offer a simpler theoretical analysis of the geometry of those cuts in prolonged lathe work, boring, and preparing flat surfaces. Their analysis leads them to three conclusions: first, the cutting angles and their positions relative to the work are chosen from the optimal values provided by three equations developed in the article's text; second, the computations made by the formulas developed by the article show that at constant grinding angles, the forward angle is reduced and the rear angle is increased with increasing machine angles; third, an increase in the depth of cut in reverse cutting leads to an increase in the forward angle and a reduction in the rear angle.

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USSR

UDC 621.371:621.391.814.2

OSTROVSKIY, L. A., SOUSTOV, L. V., Scientific Research Radio Physics Institute

"Self-Modulation of Electromagnetic Waves in Nonlinear Communication Lines"

Gor'kiy, Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 2, 1972, pp 242-248

Abstract: Results are presented from a study of nonlinear phenomena caused by the self-modulation effect in lines with nonlinear capacitances of the semiconductor diodes. The effects connected with instability of the traveling and standing electromagnetic waves in these lines were investigated. In such systems it turned out to be possible to obtain highly significant (up to 13 times) buildup of the depth of modulation of the traveling wave and also to trace the evolution of the waves with deep modulation as a result of which the wave splits into shortwave packets. It is also essential that the use of a limited system -- resonator -- permits observation of the self-modulation of the standing monochromatic wave. The modulation occurs only as a result of natural field fluctuations. The specific nature of the system used in the experiment connected with the relaxation nature of the nonlinearity is also presented. The investigated effects can find practical application in connection with the possibility of amplifying and generating electromagnetic signals [L. A. Ostrovskiy, et al., USSR Author's Certificate No 302801, Byull. izobr., No 15, 1971].

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1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--INFLUENCE OF VARIOUS FACTORS ON THE COPOLYMERIZATION OF ISOBUTYLENE AND ISOPRENE -U-

AUTHOR-(04)-SHLIFER, D.I., KOVALEVA, G.V., SOUSTOVA, N.V., SOKOLOVA, V.M.

COUNTRY OF INFO--USSR

SOURCE--KAUCH REZINA 1970, 29(5), 1-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--COPOLYMERIZATION, ISOPRENE, LOW TEMPERATURE EFFECT, ISOBUTENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0975

STEP NO--UR/0138/70/029/005/0001/0003

CIRC ACCESSION NO--AP0138003

UNCLASSIFIED

2/2 022 UNCLASSIFIED

CIRC ACCESSION NO--AP0138003 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ISOBUTYLENE (I) AND ISOPRENE WERE COPOLYMD. IN ETCL OR ISOPENTANE (II) AT MINUS 100DEGREES TO MINUS 30DEGREES. AT SIMILAR TO MINUS 30DEGREES THE MIXT. BECAME HOMOGENEOUS AND THE COPOLYMER MOL. WT. AND COMPN. DID NOT DEPEND ON THE SOLVENT. IN THE HETEROGENEOUS COPOLYM. AT LESS THAN MINUS 30DEGREES THE MOL. WT. OF THE COPOLYMER OBTAINED IN II WAS 3-3.5 TIMES LARGER THAN THAT OBTAINED IN ETCL. THE CHANGES OF THE SOLVENT AND TEMP. VARIED THE AMT. OF I UNITS IN THE COPOLYMER FROM 4 TO 10PERCENT VOL. WITHOUT ALTERING ITS MOL. WT. FACILITY: VSES. NAUCH-ISSLED. INST. SIN. KAUCH. IM. LEBEDEVA, LENINGRAD, USSR.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

1/2 021

TITLE--ISOBUTYLENE POLYMERS OR COPOLYMERS -U-

AUTHOR-(04)-LIVSHITS, I.A., SHLIFER, D.I., KOVALEVA, G.V., SOUSTOVA, N.V.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,443

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ISOBUTENE, POLYMER, COPOLYMER, ISOPRENE, ALUMINUM HALIDE, CATALYTIC POLYMERIZATION, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0482/70/000/000/0000/0000

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UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 021

CIRC ACCESSION NO--AA0128816

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ISOBUTYLENE POLYMERS OR COPOLYMERS ARE PREPD. BY POLYMG. OR COPOLYMG. WITH, E.G., ISOPRENE IN A POLAR OR NONPOLAR HYDROCARBON SOLVENT AT MINUS 30 TO MINUS 100DEGREES BY USING AL HALIDE BASED CATALYSTS. TO OBTAIN END PRODUCTS WITH A SPECIFIED MOL. WT. RAGNE, THE POLYMN. PROCESS IS CARRIED OUT IN THE PRESENCE OF 2,4,4,TRIMETHYL,1,PENTENE.

UNCLASSIFIED

UDC 612.017.1-06:614.72

USSR

OLEFIR, A. I., MINTSER, O. P., SOVA, R. YE., Candidates of Medical Sciences, Institute of Labor Hygiene and Occupational Disease, Kiev

"Complex Evaluation of the State of Nonspecific Immunity under the Effect of External Environmental Factors"

Moscow, Gigiyena Sanitariya, No 10, 1972, pp 85-89

Abstract: A complex evaluation was made of nonspecific immunity under the effect of environmental factors. The nature of the distribution of immunological tests was considered before beginning the evaluation. The natural immunity indexes of the described tests were found to be characterized by Poisson distribution. For the distribution of variables differing from normal, the difficulties of mathematical analysis are very large. Therefore, it was proposed that evaluation of the differences be used by each gradation of the investigated parameter individually. For the overall evaluation the Rx criterion was proposed:

$$Rx = \Sigma ti,$$

where t is the value of the Student criterion calculated by the usual procedure for each experimental point of the curve. The criterion means that the greater the value of t, the smaller the probability that the given difference is random.

USSR

OLIFIR, A. I., et al., Gigiyena Sanitariya, No 10, 1972, pp 85-89

The sum of the values of t permits an integral characteristic of the parameter shift from the norm to be obtained. The biological value of a symptom or sign was also reflected in the evaluation, and for this purpose the variability of the parameter and importance of the test were used. The coefficients of biological significance Q were adopted which, on being taken into account, resulted in the following formula:

$$R_x = \Sigma ti \frac{Q_i}{tg\ \alpha_i},$$

where $\frac{Q_i}{tg\ \alpha_i} = Si$; Si is the constant for each index. The final formula has the form:

$$Rx = \Sigma ti\ Si.$$

The complex evaluation of the level of nonspecific immunity is the summation of the deviations of the humoral, cellular and barrier immunities. Therefore:

$$Rx = Gx + Cx + Tx.$$

In determining the significance of the degrees of the deviations Gx, Cx, Tx, least and greatest numerical expressions were used, found after complex

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OLIFIR, A. I., et al., Gigiyena Sanitariya, No 10, 1972, pp 85-89

evaluation of the tests in analogs subjected to the chronic effect of a series of carbamate, organophosphorus and organochlorine pesticides in doses of 1/20 to 1/50 LD_{50}. The entire range of variation of the proposed criterion was divided into four levels by the method frequently used in physiological research [V. S. Genes, Nekotoryye prostyye metody kiberneticheskoy obrabotki dannykh diagnosticheskikh i fiziologicheskikh issledovaniy, (Some Simple Methods of Cybernetic Processing of Data of Diagnostic and Physiological Studies), Moscow, 1967].

3/3

UDC 615.9:632.951:061.3(47+57)"1971"

USSR

IVANOVA, L. N. and SOVA, R. Ye.

"First Symposium on the Use of Mathematical Methods to Assess and Predict the Actual Danger of Pesticides Accumulating in the Environment and in the Body "(14-15 December 1971, Kiev)"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 1, 1973, pp 47-48

Translation: The symposium organized jointly by the Main Sanitary-Epidemiological Administration of the USSR Ministry of Health, All-Union Institute of Hygiene and Toxicology of Pesticides, Polymers, and Plastics (VNIIGINTOKS), and Institute of Cybernetics, Ukrainian Academy of Sciences, was attended by 70 persons representing various scientific institutions in the country: Institute of Industrial Hygiene, USSR Academy of Medical Sciences, Moscow and Leningrad Institutes of Biophysics, USSR Academy of Sciences, Ukrainian Institute of Plant Protection, Ukrainian Institute of Industrial Hygiene, Ukrainian Institute of Communal Hygiene, Kiev Medical Institute, and others.

In his introductory remarks, L. I. Medved' (Kiev), Director of VNIIGINTOKS, discussed the problems resulting from pollution of the environment by pesticides.

The symposium heard and discussed reports on forecasting levels of pesticide accumulation in environmental objects and examined mathematical

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IVANOVA, L. N. and SOVA, R. Ye., Gigiyena Truda i Professional'nyye Zabolevaniya, No 1, 1973, pp 47-48

models showing the migration of chemical substances in some elements of the biosphere.

A great deal of interest was aroused by the paper of Ye. I. Spynu (Kiev) on forecasting the length of time pesticides are stored in plant products. A. G. Ivakhnenko described a mathematical apparatus used in this work (the method of group estimation of arguments, MGUA).

The need for a determined mathematical approach based on a detailed study of the mechanism of the processes, a precise calculation of all the factors that determine these processes, was emphasized in the papers of V. M. Prokhorov (Institute of Agricultural Physics, VASKhNIL [Lenin All-Union Academy of Agricultural Sciences]) and L. N. Ivanova (VNIIGINTOKS).

New approaches to the study of the migration of chemical substances from polymers into water based on mathematical planning of experiments were reflected in the papers of V. O. Sheftel' and Z. S. Team (Kiev). K. K. Vrochinskiy (Kiev) used correlation analysis to describe pesticide accumulation in fishes living in polluted water.

The reports of Ye. I. Lyublina (Leningrad) and Yu. S. Kagan, L. M. Sasinovich, and G. I. Ovseyenko (Kiev) described rapid methods of setting hygienic standards.

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USSR

IVANOVA, L. N. and SOVA, R. Ye., Gigiyena Truda i Professional'nyye Zabolevaniya, No 1, 1973, pp 47-48

Many of the papers dealt with the theory and practice of analysis of cumulative properties of various chemical substances.

V. A. Filov gave a mathematical description of the process of accumulation of chemical substances in the body. He noted the possibility of describing the kinetics of physical accumulation of substances in the body as a multicomponent model that can be used to determine the level of accumulation of a substance in different parts of the body at any moment.

I. A. Likhtarev (Leningrad) elicited the lively interest of the symposiasts with his assessment of cumulative doses and relative risk of long-term effects of pesticides. V. A. Khokhlov and A. Ya. Broytman (Leningrad) prepared a mathematical description of the process by which a poison enters the body, becomes distributed, accumulates, and is excreted and neutralized. The description is in the form of equations showing balances between the poison and enzymes.

B. M. Shtabskiy (L'vov) attempted to use the half-life of a substance in the body to describe cumulation. G. N. Krasovskiy et al. (Moscow) discussed the individual approach to the study of cumulative properties using functional tests and plotting effective hour-by-hour curves. On the other hand,

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IVANOVA, L. N. and SOVA, R. Ye., Gigiyena Truda i Professional'nyye Zabolevaniya, No 1, 1973, pp 47-48

R. Ye. Sova, A. P. Mintser, and L. I. Vygovskaya (Kiev) suggested that experimental conditions be standardized for the study of cumulation on the basis of methods they proposed for determining the average lethal dose in a chronic experiment by extrapolation and by integral evaluation of the strength of influence exerted by a substance on the function under study.

A number of papers (V. N. Kudrin and B. M. Shtabskiy, A. I. Olefir et al., G.G. Maksimov, A. P. Mintser, and Ye. N. Levkosskaya) considered various aspects of the use of mathematics in hygiene and toxicology.

I. V. Sanotskiy, S. D. Zaugol'nikov, Ye. I. Lyublina, B. V. Georgiyevskiy, Yu. S. Lapshin, and others took part in a lively discussion on the advantages and disadvantages of using deterministic and probability models for forecasting purposes, their accuracy in describing complex biological processes, economic benefits of forecasting, etc.

The resolution adopted at the symposium proposed that posts be set up for mathematicians on the staffs of head institutes concerned with hygienic problems and that the curriculum of health and hygiene faculties of medical institutes and graduate programs provide for training in mathematics, etc. The next symposium on the use of mathematical methods in hygiene and toxicology is scheduled for 2 years from now.

4/4

UDC 632.95

USSR

REVEL'SKIY, I. A., IOONISON, V. A., IL'MOYA, K. A., BELOV, V. M., KARAVAYEVA, V. G., LOOG, E. P., SOVAKOVA, T. M.

"The Sensitivity of a Flame-Photometric Detector to Certain Pesticides as a Function of Temperature"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryaz-neniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the Second All-Union Conference on the Investigation of Pesticide Residues and Preventive Contamination of Food Products, Fodder and Environment), Tallin, 1971, pp 102-107 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N448)

Translation: On a chromatograph of the Melpar Company, a Study was made of the behavior of a single and double-channel flame photometric detector as a function of the temperature of the detector and the thermostat of the columns. The separation of the artificial mixture of pesticides is carried out in a glass column 2 meters long with an inside diameter of 4 mm filled with NR chromosorb with a 3% phase of OV-1. The column was heated for 50 hours in advance at 250°. The evaporator temperature was 250°, the thermostat temperature of the columns and the detector was 75-220°. The flow rates of N2 (the gas-carrier), H_2, O_2 and air are 80, 150, 20 and 10 cm^3/min respectively. In checking the sensitivity of the flame photometric detector, a mixture of methyl parathion, parathion, methylthion and ethion in hexane was used. The amount

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USSR

REVEL'SKIY, I. A., et al., Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryazneniya imi produktov pitaniya, kormov i vnesh. sredy, Tallin, 1971, pp 102-107

of each component was 10^{-9} in a microliter of solution. For a decrease in background current and the noise level it was necessary to operate at low temperatures of the flame-photometric detector (but not less than 80-100° to avoid condensation of moisture), or with additional cooling of the photomultiplier and filter. It is expedient to study the dependence of the background current and noise level for each new column. The phosphorus channel is more sensitive than the sulfur channel to temperature variations of the detector and columns. The background current and noise level for it are ~10 times higher than for the sulfur channel. For the two-channel flame photometric detector, the background current and noise level as functions of the column temperature were somewhat greater than for the single channel, and as functions of the detector temperature, somewhat less. The basic deficiencies of the investigated flame photometric detector are as follows: the filters and photomultipliers are under the effect of the detector housing temperature; as a result of internal reflections of light, variation in the parameters is observed on transition to operation with a two-channel detector. The detector developed at the Special Design Office of the Estonian SSR Academy of Sciences does not have these deficiencies.

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UNCLASSIFIED PROCESSING DATE--18SEP70

1/2 022

TITLE--DISTRIBUTION OF LAMINARINASES IN MARINE INVERTEBRATES -U-

AUTHOR-(03)-SOVA, V.V., ELYAKOVA, L.A., VASKOVSKI, V.E.

COUNTRY OF INFO--USSR

SOURCE--COMP. BIOCHEM. PHYSIOL. 1970, 32(3), 459-64

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MARINE BIOLOGY, DIGESTIVE SYSTEM, ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UK/0000/70/032/003/0459/0464

PROXY REEL/FRAME--1983/0725

CIRC ACCESSION NO--AP0053666

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--18SEP70

242 022

CIRC ACCESSION NO--AP0053666

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIFTY SPECIES OF MARINE INVERTEBRATES OF DIFFERENT SYSTEMATIC AND ECOL. POSITIONS WERE TESTED FOR QUANT. LAMINARINASE ACTIVITY IN THEIR DIGESTIVE SYSTEMS. LAMINARINASE ACTIVITY ESTD. BY THE INCREASE OF REDUCING SUGARS IN AN INCUBATED MIXT. WAS FOUND WITH THE MAJORITY OF THE ANIMALS STUDIED. THE CRYST. STYLES OF BIVALVIA, SUCH AS SPISULA SACHALINENSIS AND MACTRA SULCATARIA, AS WELL AS DIGESTIVE TRACTS OF SOME CRUSTACEA, SHOWED THE HIGHEST ENZYME ACTIVITY. LAMINARINASE ACTIVITY IS APPARENTLY MORE DEPENDENT UPON THE SYSTEMATIC POSITION OF THE INVERTEBRATES, THOUGH OTHER FACTORS LIKEWISE PLAY A NOTABLE ROLE.

UNCLASS

USSR

UDC 621.311.153:681.3

SOVALOV, S. A., TURSKIY, E. V.

"Application of Digital Computers for Analysis of the Operating Conditions of the United Electric Power System of the European Part of the USSR"

V sb. Probl. tekhn. elektrodinamiki (Problems of Technical Electrodynamics -- collection of works), vyp. 25, Kiev, Naukova Dumka Press, 1970, pp 3-11 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Ye235)

Translation: The modern level of development of the Unified Power System of the European part of the USSR requires further improved means of computer engineering for analysis of the operating conditions of the power systems. The basic requirements imposed on the programs are developed. The characteristics of the programs used in the integrated dispatch controls of the Unified Power System are presented. Basic problems of introducing digital computers for analyzing the operating conditions of the Unified Power Systems are formulated. There are 2 entries in the bibliography.

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Titanium

UDC 669.295.539.295

USSR

KOLACHEV, B. A., LOKSHIN, F. L., LYASOTSKAYA, V. S., SOVALOVA, Ye. G., and KOROBOV, O. S., Stupinsk Branch of Moscow Aviation Technological Institute, Chair of the Science of Metals and of Hot Working of Metals

"The Influence of Aluminum on the Structure and the Properties of Ti+10%V Alloy"

Ordzhonikidze, Tsvetnaya Metallurgiya, No 2, 1973, pp 149-152

Abstract: The influence of Al additions on the structure and properties of Ti+10% V alloy, possessing the α'' martensite structure after hardening from the β -region, was experimentally investigated. The demonstrated change of the distance between (020) and (110) lines of the α''-phase indicates that the rhombic distortion of the lattice decreases with increasing temperature of hardening. At the same time, the rhombic lattice distortion of martensite in the alloy containing 6% Al is higher than in the alloy with 3% Al. The comparison of Ti+10%V+3%Al and Ti+10%V+6%Al curves shows that the increase of Al content in the alloy widens the interval of the heating temperature of hardening, after hardening from which the α''-phase is stabilized. In hardening the Ti+10%V alloy, with increasing hardening temperature the phases $\alpha+\beta$, $\alpha+\beta+\omega$, $\alpha+\beta+\omega+\alpha''$, $\alpha+\alpha''$ and α'' develop in succession; in Ti +10%V+3%Al and

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USSR

KOLACHEV, B. A., et al., Tsvetnaya Metallurgiya, No 2, 1973, pp 149-152

Ti+10%V+6%Al the phases $\alpha+\beta$, $\alpha+\beta+\alpha''$, $\alpha+\alpha''$, and α'' develop. Al prevents ω-phase formation in hardening and lessens the quantity of ω-phase developing in the aging of hardened alloys. Three figures, one table, eight bibliographic references.

2/2

Titanium

UDC 669.295:539.295

USSR

LYASOTSKAYA, V. S., KOLACHEV, B. A., SOVALOVA, YE. G., Moscow Aviation Engineering Institute, Departments of Physical Metallurgy and Hot Treatment of Metals

"Dilatometric Investigation of Transformations in Alloys of Ti-V and Ti-Al-V Systems"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya, No 4, 1973, pp 127-131

Abstract: Binary alloys, containing 4, 10, 16, and 25% V, having different structures (alpha', alpha", beta+omega, and beta) after quenching from the beta region, and ternary alloys with the same vanadium content but with 3 and 6% aluminum, were studied. In alloys of the Ti-V system, the decomposition of alpha'-martensite does not cause notable volume effects, but the decomposition of alpha"-martensite is accompanied by a compression effect at temperatures above 400°C. Alloying Ti-V alloys with 3% Al leads to increased volume effects accompanying the decomposition of alpha'- and alpha"-martensite during heating, but alloying with 6% Al reveals an almost complete disappearance of these volume effects. Results produced in this study confirmed the scheme of unstable

USSR

LYASOTSKAYA, V. S., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya, No 4, 1973, pp 127-131

beta-solid solution in Ti-V alloys as proposed by S. G. FEDOTOV and his associates, and indicate the essentially different processes occurring in Ti-V alloys above and below 280°C. Aluminum diminishes volume effects caused by the formation and transformation of the omega-phase. A significant effect of compression at temperatures above 500°C can be detected in the presence of aluminum which has been linked with redistribution of aluminum between the alpha- and beta-phases. 3 figures, 9 bibliographic references.

2/2

USSR

UDC 669.295.539.292

KOLACHAEV, B. A., LYASOTSKAYA, V. S., and SOVALOVA, Ye. G., Moscow

"The Connection Between the Strength Properties and Phase Composition of Hardened Titanium Alloys"

Moscow, Izvestiya Akademii Nauk USSR, Metally, No 5, Sep-Oct 72, pp 147-159

Abstract: A study was made of the relationship between metastable diagrams of the phase composition of hardened titanium alloys and equilibrium diagrams of state. The example of titanium alloys with β-isomorphic elements (Ti-V, Ti-Fe, Ti-Ni, Ti-Cr, Ti-Nb, and Ti-W) is used to demonstrate that the metastable diagram can be predicted on the basis of the diagram of state, providing the structures of titanium alloys after hardening from the β-domain are known. From the metastable diagram of the phase composition the quality dependence of mechanical properties of titanium alloys on their heating temperature in hardening can be established. The hardness dependence of Ti-V alloys on their heating temperature and phase composition, demonstrates the correlation between experimental data and theoretical curves. Four figures, eight bibliographic references.

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USSR UDC: 669.295:539.292

LYASOTSKAYA, V. S., KOLACHEV, B. A. and SOVALOVA, V. G., Department of Physical Metallurgy and Hot Working of Metals, Moscow Aviation Technological Institute

"Effect of Heat Treatment on the Structure and Properties of Alloys of the Ti-V System"

Ordzhonikidze, Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, No 5, 1971, pp 128-132

Abstract: According to earlier research, vanadium may be effectively used to strengthen titanium alloys both as annealed and hardened. The objective of this study was the effect of age hardening of alloys as a function of structure and the effect of the temperature of heating for austenizing in the beta-region on the hardening of the aged alloys. The test specimens were alloys containing 4, 6, 8, 10, 12, 14, 16, and 20% V. The alloys were water quenched from 850 and 1000°C and then aged for 3 hrs at 200, 400, and 500°C. The specimens were faced to remove the gas saturated layer. In alloys with martensite structure (after quenching), maximum age hardening

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LYASOTSKAYA, V. S., et al, Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, No 5, 1971, pp 128-132

was observed during α phase decomposition. In alloys with the (β+ω) phase, the strengthening effect appears to be slight. An increase in the temperature of heating for austenizing in the δ-region increases the hardness of alloys with a martensite phase structure and leaves the hardness of β-alloys unaffected. The temperature of heating for austenizing in the β-region does not affect the aging of martensitic alloys. Increasing the austenizing heating temperature in the β-region promotes the aging effect of β-alloys induced by the formation of the ω-phase but does not affect the aging induced by the α-phase. (3 illustrations, 2 tables, 5 bibliographic references).

2/2

USSR UDC: 681.3

SOVETOV, B. Ya., Leningrad Electrical Engineering Institute imeni V. I. Ul'yanov (Lenin)

"Estimate of Losses of Information in Large Information Systems With Code Redundancy"

Leningrad, Izvestiya VUZov, Priborostroyeniye, Vol 15, No 3, 1972, pp 49-53

Abstract: A probability estimate is given for losses of information with regard to interference in communication lines, equipment failure, and servicing. It is assumed that random pulse interference acts in the communications lines, with time distribution of pulses in accordance with the Poisson law, and that the equipment is subject to momentary failures, with an exponential law of reliability. It is further assumed that the times of the appearance of flows of information also follow the Poisson law and that the servicing law is exponential. The following formula is proposed for calculating the total probability of information losses in large systems:

$$P_{loss}=P_{loss_{i,f}}+(1-P_{loss_{i,f}})P_{loss_{u.s}},$$

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USSR

SOVETOV, B. Ya., Izv. VUZov, Priborostr., Vol 15, No 3, 1972, pp 49-53

where $P_{loss_{i,f}}$ is the probability of losses due to interference and failures, and $P_{loss_{u.s}}$ is the probability of losses due to untimely servicing. Formulas are derived for these probabilities with and without code redundancy. It is found that introducing general code redundancy reduces the overall probability of information loss but increases the losses due to untimely servicing. Recommendations are made for reducing information losses. Three figures, bibliography of three titles.

2/2

USSR UDC:681.14

SOVETOV, B. Ya., Leningrad Elect. Eng. Inst. imeni Lenin

"Choice of Optimum Redundancy for Telemetering Transmission Systems"

Leningrad, Izvestiya VUZ -- Priborostroyeniye, No. 9, 1970, pp 51-54

Abstract: This paper attacks the problem of how much redundancy to introduce into a system that will compensate for the action of noise in the communication channel as well as breakdowns of the equipment. The optimal redundancy level is found, and the obtained result is specifically applied to the case in which the Poisson law is the mathematical model for the error distribution in the code combination, when the errors are the result of noise and breakdowns. Two cases of redundancy introduction are considered: general and specific. The first type is coding redundancy, where the decoding device in the system receiver corrects code combination errors caused by noise and system breakdowns. In the second type, the redundancy to be introduced is considered

USSR

SOVETOV, B. Ya., Izvestiya VUZ - Priborostroyeniye, No 9, 1970, pp 51-54

separately for the transmitting part of the system, the receiving part, and the communication channel. The author finds that combining errors due to noise in the communication channel and system breakdowns permits the application of the fundamental results of information theory to the design of reliable information transmission systems. He concludes also that the required redundancy level can be reduced by switching to non-binary codes.

2/2

1/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--COMPARATIVE ESTIMATION OF RELIABILITY OF INFORMATION TRANSMISSION BY REDUNDANT CODES -U-

AUTHOR--SOVETOV, B.YA.

S

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEKHANIKA, 1970, NR 2, PP 104-111

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--RELIABILITY THEORY, REMOTE CONTROL SYSTEM, COMMUNICATION CHANNEL, COMMUNICATION CODING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1976 STEP NO--UR/0103/70/000/002/0104/0111

CIRC ACCESSION NO--AP0054774

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--16OCT70

2/2 024

CIRC ACCESSION NO--AP0054774

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFORMATION AND APPARATUS RELIABILITY OF A SYSTEM OF REMOTE CONTROL IS CONSIDERED. THERE ARE DETERMINED THE DESIGN CORRELATIONS FOR THE DETERMINATION OF THE POSSIBILITY OF THE PROPER FULFILLMENT OF THE CODED ORDER WITH TAKING INTO ACCOUNT THE ACTION OF RANDOM PULSE DISTRUBANCES IN THE COMMUNICATION CHANNEL AND INSTANTANEOUS FAILURES OF THE APPARATUS.

UNCLASSIFIED

USSR

UDC 654.931

SOVETOV, B. Ya.

Effektivnost' Vvedeniya Izbytochnosti v Sistemy Peredachi Telemekhanicheskoy Informatsii (Effectiveness of Introducing Redundancy Into Systems for Transmitting Telemechanical Information), Leningrad, "Nauka", 1972, 131 pp

Abstract: The author considers the introduction of software and hardware redundancy into systems for transmitting telemechanical information. An informational approach to analysis of the reliability of telemechanical systems is used, and a relation is established between the problem of interference immunity and reliability. Methods are outlined for introducing redundancy, with separation into code redundancy and repetition redundancy. The fundamental probabilistic indices of a system are calculated and the boundaries of effective utilization of different forms of redundancy are defined. Considerable attention is given to general forms of redundancy aimed at simultaneous improvement of the interference immunity and reliability of systems. The most typical block schematics are presented for redundant systems of telemechanical data transmission.

USSR

SOVETOV, B. Ya., Effecktivnost' Vvedeniya Izbytochnosti v Sistemy Peredachi Telemekhanicheskoy Informatsii, Leningrad, 1972

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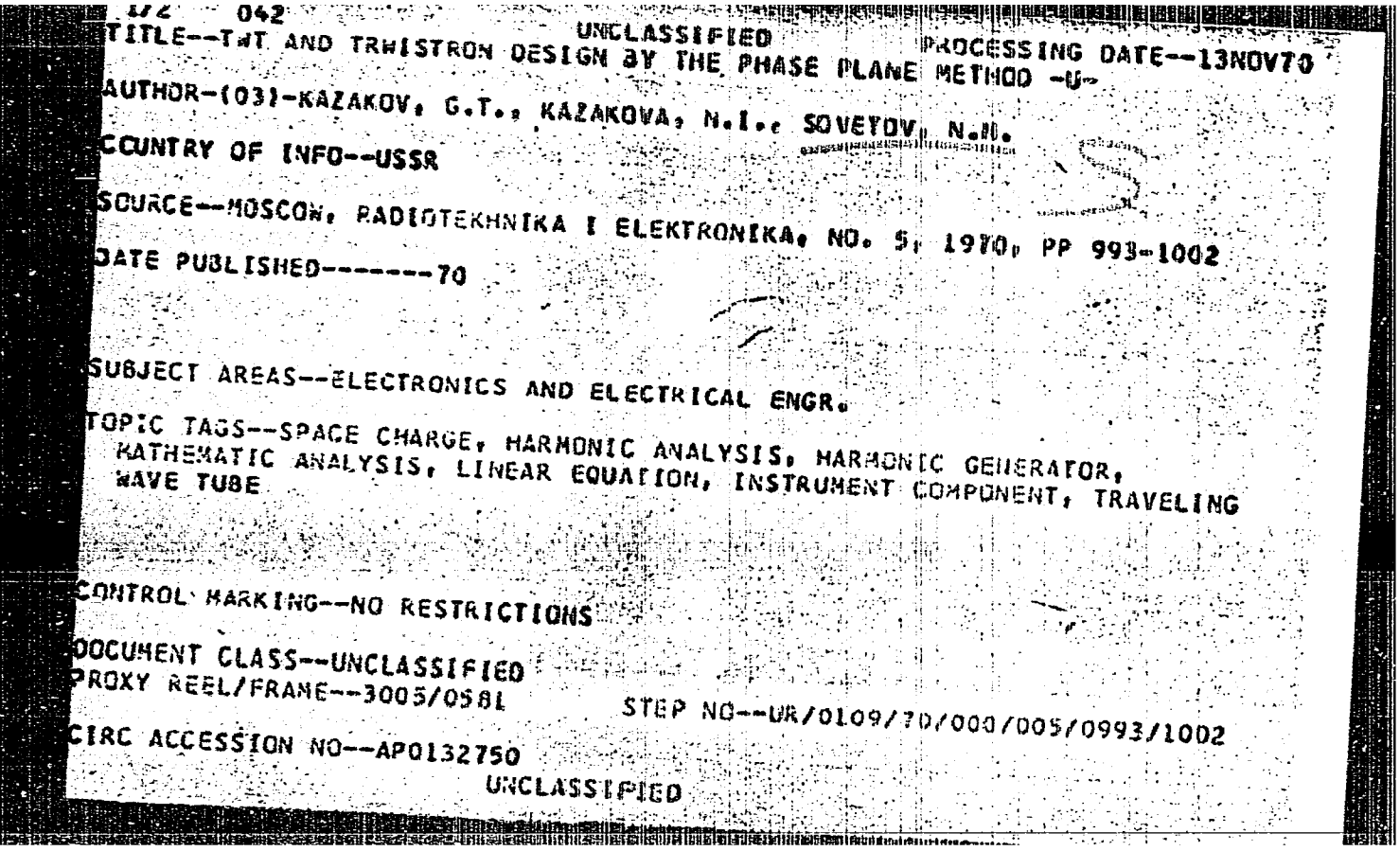

UNCLASSIFIED 042

TITLE--TWT AND TRWISTRON DESIGN BY THE PHASE PLANE METHOD -U-

PROCESSING DATE--13NOV70

AUTHOR-(03)-KAZAKOV, G.T., KAZAKOVA, N.I., SOVETOV, N.N.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, NO. 5, 1970, PP 993-1002

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--SPACE CHARGE, HARMONIC ANALYSIS, HARMONIC GENERATOR, MATHEMATIC ANALYSIS, LINEAR EQUATION, INSTRUMENT COMPONENT, TRAVELING WAVE TUBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0581

STEP NO--UR/0109/70/000/005/0993/1002

CIRC ACCESSION NO--AP0132750

UNCLASSIFIED

2/2 042 UNCLASSIFIED

CIRC ACCESSION NO--AP0132750 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PURPOSE OF THIS ARTICLE IS TO DEMONSTRATE HOW THE PHASE PLANE METHOD, DEVELOPED FOR LOW GAIN PARAMETERS AND IDEAL ELECTRON BUNCHING, CAN BE USED FOR ARBITRARY GAIN PARAMETERS AND LESS THAN IDEAL BUNCHING. IT IS FIRST SHOWN THAT THE ELECTRON GROUPING IN THE BEAM IS MORE RELIABLY ESTIMATED BY THE AMPLITUDE RATIO OF THE SPACE CHARGE FIRST HARMONIC THAN BY THE CURRENT AMPLITUDE. AS THE INITIAL EQUATIONS IN THEIR CALCULATIONS, THE AUTHORS USE THE SHORTENED SYSTEM OF LINEAR EQUATIONS ASSUMING LOW ATTENUATION AND NEGLIGIBLE GAIN. THE RESULT OF THE CALCULATION IS A PHASE PLANE EQUATION WHICH PERMITS ANALYSIS OF THE DYNAMICS OF THE SPACE CHARGE AND FIELD INTERACTION IN O,TYPE INSTRUMENTS. AN EQUATION FOR INSTRUMENT EFFICIENCY IS DEVELOPED; THIS FORMULA WAS CHECKED BY ELECTRON COMPUTER AND WAS COMPARED WITH EXPERIMENTS PERFORMED EARLIER FOR AN ERROR OF 1-2PERCENT. THE EQUATIONS DEVELOPED THROUGH USE OF THE PHASE PLANE METHOD ARE APPLIED TO THE TRAVELLING WAVE TUBE AND THE TWISTRON, A PROCEDURE RECOMMENDED BY THE AUTHORS. IN A CONCLUDING APPENDIX, THE AUTHORS SHOW HOW THE SHORTENED SYSTEM OF LINEAR EQUATIONS IS DERIVED.

UNCLASSIFIED

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UDC: 621.385.632.001.24

USSR

KAZAKOV, G. T., KAZAKOVA, N. I., and SOVETOV, N. M.

"TWT and Trwistron Design by the Phase Plane Method"

Moscow, Radiotekhnika i Elektronika, No. 5, 1970, pp 993-1002

Abstract: The purpose of this article is to demonstrate how the phase plane method, developed for low-gain parameters and ideal electron bunching, can be used for arbitrary-gain parameters and less than ideal bunching. It is first shown that the electron grouping in the beam is more reliably estimated by the amplitude ratio of the space charge first harmonic than by the current amplitude. As the initial equations in their calculations, the authors use the shortened system of linear equations assuming low attenuation and negligible gain. The result of the calculation is a phase plane equation which permits analysis of the dynamics of the space charge and field interaction in O-type instruments. An equation for instrument efficiency is developed; this formula was checked by electron computer and was compared with experiments

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KAZAKOV, G. T., et al, Radiotakhnika i Elektronika, No 5, 1970, pp 993-1002

performed earlier for an error of 1-2%. The equations developed through use of the phase plane method are applied to the traveling wave tube and the twistron, a procedure recommended by the authors. In a concluding appendix, the authors show how the shortened system of linear equations is derived.

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UDC 621.385.623

SOVETOV, N.M., ZAKHAROV,A.A., SHESTOPEROV, A.K.

"On The Effect Of The Location Of The Energy Outlet On The Efficiency Of A Klystron With Distributed Interaction"

V sb. Vopr. elektron. tekhniki (Problems Of Electronics Technology-- Collection Of Works), Saratov, 1970, pp 37-44 (from RZh--Elektronika i yeye primeneniye, No 6, June 1970, Abstract No 6A127)

Translation: The process is considered of the establishment of high-frequency amplitude in the extended section of a klystron with distributed interaction, allowing for the spatial effect of the energy outlet expressed in terms of the attenuation introduced and varying with the length of the section. Equations for the excitation are formulated. The results are presented of computations with two arrangements of the energy outlet: at the end of the section and its beginning for two different lengths of the output resonator. Summary.

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USSR

UDC 621.385.6

SOVETOV, N.K., KAZAKOV, B.T.

"Application Of The Method Of Phase Plane To An Analysis Of Nonlinear Processes In TWT, KDI, And RDT"

V sb. Vopr. elektron. tekhniki (Problems Of Electronics Technology -- Collection Of Works), Saratov, 1970, pp 14-28 (from RZh--Elektronika i yeye primeneniye, No 6, June 1970, Abstract No 6A133)

Translation: The paper considers the application of the classical method of the phase plane to an analysis of nonlinear processes in traveling-wave tubes, taking into account the subdividing: klystrons with distributed interaction and reflected wave tubes. The basic parameters of these devices are computed. Summary.

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UDC 576.858.23(Coxsackie)+576.858.17.083.35

SOVETOVA, G. P., MARCHENKO, B. I., AMCHENKOVA, A. M., BALANDIN, I. G., and [illegible]KOV, A. A., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical Sciences, Moscow

"Chronic Virus Infection in Transplanted Cultures of Human Leukemia Cells (J-96) and Mouse Fibroblasts (L) Produced by Inoculation of Cultures with Coxsackie B_5 and Vesicular Stomatitis Viruses in the Presence of Antisera to the Infected Cell"

Moscow, Voprosy Virusologii, No 1, Jan/Feb 71, pp 10-16

Abstract: In order to evaluate the significance of antiviral antibodies in the development of chronic infection, it is necessary to study them in combination with other immunological factors under natural conditions. Consequently a serum against the infected cells was used to produce chronic infection in a tissue culture. J-96 cell cultures were inoculated with Coxsackie B_5 virus and L cells with vesicular stomatitis virus, and then cultured in the presence of antisera against the infected cells. In 7 of 14 tests with J-96 cultures and in 3 of 4 tests with L cultures, cell strains with properties differing sharply from the original ones were obtained. Starting with the 9th passage, when the cultures were no longer treated with the

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SOVETOVA, G. P., et al., Voprosy Virusologii, No 1, Jan/Feb 71, pp 10-16

antiserum, and for the remaining observation period (22-48 passages), the cell cultures did not degenerate. The respective viruses were detected in all cell strains. Cytophysiological, morphological, and cytochemical studies were performed, the content of acid-soluble proteins in the various cell cultures, and succinate dehydrogenase activity in time culture cells were determined. During the entire observation period, chronic infection never became acute even when no antiserum was in the culture medium. The cultures were highly resistant to superinfection and differed from normal cultures by a considerably reduced content of acid-soluble proteins and by their cytomorphological and histochemical properties.

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USSR

UDC: 536.2:536.63

PELETSKIY, V. E., CHEKHOVSKOY, V. Ya., SOVI'TSKIY, Ye. M., TYLKINA, M. A., AMASOVICH, Ye. S., ARSKAYA, Ye. P., ZAYCHENKO, V. M., PETUKHOV, V. A., Institute of High Temperatures of the Academy of Sciences of the USSR, Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences of the USSR

"Some Physical Properties of a New Alloy in the Nickel-Rhenium-Molybdenum System"

Moscow, Teplofizika Vysokikh Temperatur, Vol 11, No 2, Mar/Apr 73, pp 435-436

Abstract: The authors study the heat conduction, coefficient of thermal expansion and resistivity of an alloy in the nickel-rhenium-molybdenum system containing 10 wt.% Re and 15 wt.% Mo. Curves are given showing the temperature dependence of the measured parameters between 100 and 1000°C. The results indicate structural transformation of the alloy in the solid state. Analysis points to the possibility of formation of the so-called K-state observed in the region of solid solutions of the nickel-chromium system with more than 16% chromium. However, a final explanation of the observed anomalies will require further research.
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